

impurity layer may be greater than an impurity concentration gradient at an interface between the first impurity layer and the second impurity layer.

[0017] According to still other exemplary embodiments of the inventive concept, there is provided a light emitting element which includes: a first conductivity type semiconductor layer; a second conductivity type semiconductor layer; and an active layer interposed between the first conductivity type semiconductor layer and the second conductivity type semiconductor layer, wherein the first conductivity type semiconductor layer sequentially includes a first impurity layer, a second impurity layer, and a third impurity layer, and respective impurity concentrations of the first impurity layer, the second impurity layer, and the third impurity layer sequentially increase. Impurity concentrations at interfaces between the first impurity layer, the second impurity layer, and the third impurity layer may substantially discontinuously change.

[0018] In some embodiments, when a change in impurity concentration at the interface between the first impurity layer and the second impurity layer is M, and a change in impurity concentration at the interface between the second impurity layer and the third impurity layer is N, a relationship of $N > 2M$ may be satisfied.

[0019] Among the first impurity layer, the second impurity layer, and the third impurity layer, the first impurity layer may be disposed to be the farthest away from the active layer, and the third impurity layer may be disposed to be the closest to the active layer. In addition, the first impurity layer may have crystallinity that is higher than crystallinity of the third impurity layer. The impurity concentration in each of the impurity layers may be substantially constant.

[0020] According to still other exemplary embodiments of the inventive concept, there is provided a light emitting package which includes: a light emitting element mounted on a package substrate; a connector electrically connecting the package substrate to the light emitting element; and a molding unit molding the light emitting element. The light emitting element may be the light emitting element set forth above.

[0021] According to still other exemplary embodiments of the inventive concept, there is provided a method of fabricating a light emitting element, which includes: forming a first conductivity type semiconductor layer on a substrate; and sequentially forming an active layer and a second conductivity type semiconductor layer on the first conductivity type semiconductor layer. Here, the forming the first conductivity type semiconductor layer may include: forming a first impurity layer on the substrate, the first impurity layer being doped with an impurity at a first impurity concentration; forming a second impurity layer on the first impurity layer, the second impurity layer being doped with an impurity at a second impurity concentration that is higher than the first impurity concentration; and forming a third impurity layer on the second impurity layer, the third impurity layer being doped with an impurity at a third impurity concentration that is higher than the second impurity concentration.

[0022] Here, the first impurity layer may have surface uniformity that is higher than surface uniformity of the second impurity layer. In addition, the concentration of the impurity supplied in the forming the third impurity layer may be greater than twice the concentration of the impurity supplied in the forming the second impurity layer. Further, the method of fabricating the light emitting element may

further include forming an undoped semiconductor layer, before the forming the first conductivity type semiconductor layer.

[0023] According to still other exemplary embodiments of the inventive concept, there is provided a method of fabricating a light emitting element, which includes: forming a first conductivity type semiconductor layer on a substrate; and sequentially forming an active layer and a second conductivity type semiconductor layer on the first conductivity type semiconductor layer. Here, the forming the first conductivity type semiconductor layer includes: supplying an impurity source gas at a first flow rate to form a first impurity layer on the substrate; supplying an impurity source gas at a second flow rate to form a second impurity layer on the first impurity layer, the second flow rate being greater than the first flow rate; and supplying an impurity source gas at a third flow rate to form a third impurity layer on the second impurity layer, the third flow rate being greater than the second flow rate. Here, the third flow rate may be greater than a sum of the first flow rate and the second flow rate.

[0024] In addition, the supplying the impurity source gas at the second flow rate may be performed for a time period that is longer than that of the supplying the impurity source gas at the first flow rate, and the supplying the impurity source gas at the third flow rate may be performed for a time period that is longer than that of the supplying the impurity source gas at the second flow rate. Here, the time period of the supplying the impurity source gas at the third flow rate may be greater than a sum of the time period of the supplying the impurity source gas at the first flow rate and the time period of the supplying the impurity source gas at the second flow rate.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] Various exemplary embodiments of the inventive concept will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings in which:

[0026] FIG. 1 is a sectional side view of a material layer stack according to an embodiment;

[0027] FIG. 2A is a graph conceptually depicting changes in impurity concentration according to a height of each of impurity layers in accordance with an embodiment;

[0028] FIGS. 2B and 2C are graphs for explaining methods of fabricating a light emitting element according to embodiments, which can cause the changes in impurity concentration as in the graph of FIG. 2A;

[0029] FIG. 3 is a sectional side view of a material layer stack according to an embodiment;

[0030] FIG. 4 is a graph conceptually depicting changes in impurity concentration according to a height of each of impurity layers in accordance with an embodiment;

[0031] FIG. 5 is a side view conceptually showing a light emitting element according to an embodiment;

[0032] FIG. 6 shows an image and a graph, which show results of a deviation in optical power according to locations, as measured using a light emitting element of Example 1;

[0033] FIGS. 7A and 7B are flow charts for explaining a method of fabricating a light emitting element according to an embodiment;

[0034] FIGS. 8A to 8C are sectional side views for explaining a method of fabricating a light emitting element according to an embodiment stage by stage;